

AMENDMENTS TO THE CLAIMS

1-48. (Canceled)

49. (New) A method for communication, comprising:

specifying a bi-directional data link layer service to be provided through a network of label-switched routers between at least first and second users, connected to at least first and second respective ports of first and second respective nodes;

configuring the routers to create a first tunnel through the network for conveying packets from the first node to the second node, and a second tunnel through the network for conveying the packets from the second node to the first node;

in response to a request to initiate the bi-directional data link layer service at the first node, sending a first signaling message containing an indication of the service to be carried through the first tunnel to the second node;

in response to receiving the first signaling message at the second node, initiating the service at the second node and sending a second signaling message to the first node,

wherein the first and second signaling messages are encapsulated in signaling packets so as to establish the service through the first and second tunnels while causing all the routers between the first and second nodes to transmit the signaling packets while ignoring the signaling messages; and

in response to receiving the second signaling message at the first node, activating the service.

50. (New) The method according to claim 49, wherein the indication of the service comprises a local index indicative of the service to be provided.

51. (New) The method according to claim 49, wherein the service parameters comprise an indication of at least one of the first and second respective ports.

52. (New) The method according to claim 49, wherein the service comprises an Ethernet connection, and wherein the indication of the service is indicative of a Virtual LAN (VLAN) value to which the service is to be provided.

53. (New) The method according to claim 49, wherein the service comprises a transparent LAN service (TLS), and wherein the indication of the service is indicative of a TLS instance on which the service is to be provided.

54. (New) The method according to claim 49, wherein the service comprises a SONET service, and wherein the indication of the service is indicative of a SONET path on which the service is to be provided.

55. (New) The method according to claim 49, wherein the first signaling message contains a field identifying a service type of the requested service.

56. (New) The method according to claim 49, wherein the first signaling message comprises service parameters that are configured to form a part of a Management Information Base maintained at the first and second nodes.

57. (New) The method according to claim 49, wherein the signaling packets comprise resource reservation packets in which the signaling messages are encapsulated in an object having a class number that causes the routers to ignore the object.

58. (New) Communication apparatus, comprising:

- a first access node, which comprises at least a first port configured for connection thereto of at least a first user; and

- a second access node, which is coupled to communicate with the first access node via a network of

label-switched routers, and which comprises at least a second port configured for connection thereto of at least a second user,

wherein the routers are configured to create a first tunnel through the network for conveying packets from the first node to the second node, and a second tunnel through the network for conveying the packets from the second node to the first node, and

wherein the first access node is operative, in response to a request to initiate the bi-directional data link layer service, to send a first signaling message containing an indication of the service to be carried through the first tunnel to the second node, and

wherein the second access node is operative, in response to receiving the first signaling message at the second node, to initiate the service at the second node and to send a second signaling message to the first node, thereby causing the first node, upon receiving the second signaling message, to activate the service, and

wherein the first and second signaling messages are encapsulated in signaling packets so as to establish the service through the first and second tunnels while causing all the routers between the first and second nodes to transmit the signaling packets while ignoring the signaling messages.

59. (New) The apparatus according to claim 58, wherein the indication of the service comprises a local index indicative of the service to be provided.

60. (New) The apparatus according to claim 58, wherein the service parameters comprise an indication of at least one of the first and second respective ports.

61. (New) The apparatus according to claim 58, wherein the service comprises an Ethernet connection, and wherein

the indication of the service is indicative of a Virtual LAN (VLAN) value to which the service is to be provided.

62. (New) The apparatus according to claim 58, wherein the service comprises a transparent LAN service (TLS), and wherein the indication of the service is indicative of a TLS instance on which the service is to be provided.

63. (New) The apparatus according to claim 58, wherein the service comprises a SONET service, and wherein the indication of the service is indicative of a SONET path on which the service is to be provided.

64. (New) The apparatus according to claim 58, wherein the first signaling message contains a field identifying a service type of the requested service.

65. (New) The apparatus according to claim 58, wherein the first signaling message comprises service parameters that are configured to form a part of a Management Information Base maintained at the first and second nodes.

66. (New) The apparatus according to claim 58, wherein the signaling packets comprise resource reservation packets in which the signaling messages are encapsulated in an object having a class number that causes the routers to ignore the object.